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ABSTRACT

The booklet outlines New York state school policy and procedures for screening students for scoliosis, lateral curvature of the spine. It is explained that screening is designed to discover spinal deformities early enough to prevent surgery. Planning aspects, including organizing a planning team for the school district, are discussed. Among components of program implementation covered are public awareness and education of students, parents, staff and screeners. Screener selection, site preparation, and screening procedures are reviewed. Appended are scoliosis references and resources, sample parent communication forms regarding the screening, and a sample referral letter to a private health care provider.

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SCOLIOSIS SCREENING IN SCHOOLS

Introduction

Although present statistics are not accurate, the National Scoliosis Research Society estimates that one million Americans have a significant degree of scoliosis. This condition begins in childhood and is often progressive. The most rapid progression occurs during the growth-spurt years of adolescence. In previously conducted screening programs as many as 14% of children ten to fourteen years of age have been found to have some sign of scoliosis. In most, the curvature is slight and does not progress to a point where treatment is needed. However, some do require treatment or continued observation.

In about 85% of all diagnosed cases no cause for the condition can be found. This is called idiopathic scoliosis. Of the remainder, scoliosis is caused by a disease of the bones or muscles. Because there are different types and causes and because scoliosis can appear at different ages in different children, scoliosis screening should be provided at least annually.

Screening programs have detected some degree of scoliosis in about an equal number of boys and girls. However, about 80% of those with scoliosis severe enough to require treatment are girls. The reason for this fact is not known. If untreated and progressive, the deformity which results can be unsightly and cause impairment of the body's range of motion and endurance. In advanced stages, the distortion of the spine can affect the function of other parts of the body, including the heart and lungs. If longstanding, the condition can also cause back pain. With treatment, especially if started in the early stages, scoliosis can be prevented from progressing beyond a barely noticeable curve in the spine that does not interfere with mobility or activity. Treatment begun in the later stages can also produce favorable results, although it may take longer and be less successful.

The percentage of individuals with kyphosis and lordosis is less than those with scoliosis and in most cases the cause is unknown. Often assumed to be bad posture, these conditions can also be progressive and require treatment. In such instances early detection, diagnosis and treatment are important to successful management.

The purpose of school screening programs is to discover spinal deformities early, so that they can be treated without the need for surgery. There is a tendency for scoliosis to run in families. Therefore, when a child is detected as having a possible spinal deformity, it is wise to check the backs of all other children in the family, regardless of age or grade.

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Legislative Background

Effective February 1, 1979, Education Law, Article 19, Section 905 and the Regulations of the Commissioner of Education, Sections 136.1 and 136.3 require the schools to provide scoliosis screening for each child between the ages of 11 and 16 at least once in each school year. The regulations define what is meant by scoliosis screening and require that such screening be provided by persons with appropriate training.

These guidelines have been prepared to assist school authorities in the development of an effective scoliosis screening program. In order to assure that all who use these guidelines have the same understanding of their meaning and intent, several key terms are defined here.

Definitions

1. Scoliosis: a lateral or side to side curvature of the spine.
2. Kyphosis: an accentuated backward rounding of the upper spine commonly called adolescent roundback or Scheurmann's disease.
3. Lordosis: an accentuated forward curvature of the spine. If of the lower spine it is commonly called swayback.
4. Scoliosis Screening as defined in the Regulations of the Commissioner of Education, Section 136.1, subdivision (h), means examination of the uncovered spine including the cervical, thoracic, lumbar and thoracolumbar segments by viewing from the back, front and sides under adequate illumination and observing the existing range of motion of the spine in all directions.

PROGRAM DEVELOPMENT

I. Planning the Program

The focus of a school scoliosis screening program is twofold: 1) education and 2) early identification of children with common spinal deviations. If the program is to be effective, it will require a collaborative team effort involving the resources of both school and community.

The first step should be to organize a planning team for the district. Chaired by the school nurse-teacher or other appropriate person, the team should consist of a building principal, a school physician, a health education teacher, a physical education teacher and a classroom teacher. Representatives from the following might also be included.

- .local Medical Society
- .city, county or regional Health Department
- .regional Chapter, American Academy of Pediatrics
- .local or regional Chapter, New York State Society of Orthopaedic Surgeons
- .local or regional Chapter, New York State Chiropractic Association
- .local or regional Chapter, Easter Seals Society
- .local or regional Chapter, The Scoliosis Association, Inc.
- .School Board
- .Parent-Teacher Association
- .Student Council
- .Other interested groups

The team should be responsible for planning, publicizing, administering and evaluating the scoliosis screening program. The planning team should identify the following:

1. The number of pupils by each grade level who must be screened.
Note: By law, all pupils ages 11-16 years must be screened regardless of grade. If the district has the capability, scoliosis screening should be provided to all pupils regardless of age or grade.
2. The number of school personnel who must be trained to provide the screening. These should include school physician, school nurse-teacher, school nurse, physical therapist (if one is employed), and physical education teacher.
3. The information on scoliosis which is essential to an effective parent education program.
4. The information which is essential to an effective student education program and the most appropriate grade or development sequence for the presentation of key concepts.
5. The kind and number of educational resources which will be needed for parents, pupils, screeners and school staff.
6. The time needed for the educational and screening components and follow-through activities. (See Section III.)
7. School and community resources available to provide or assist in the instructional components.
8. Community health resources available to provide educational materials.
9. Community health resources (public and private) available to act on referrals.
10. A workable mechanism for feedback of information from referral source to school.
11. School-community liaison available to facilitate coordination and correlation of the activities and services of all groups.

From this information, an action plan and timelines for each major phase or activity should be developed, including preselected checkpoints which will assure that planners are aware of progress or problems.

II. Program Implementation

Implementation of an effective scoliosis screening program should include the following:

A. Public Awareness Component. If the program is to be accepted, and referrals are to be acted upon, the community must accept and understand the seriousness of scoliosis and related spinal deformities. Good public awareness programs tell what the condition is, what the program is, why it is important, what will be done, for whom and when it will be done and how others may help. Local media should be used. Where appropriate, these may include: radio, TV, newspapers, newsletters, bulletin boards and the school public address system. Community resources such as the local or regional Chapter of the Easter Seals Society and Scoliosis Association, Inc., may be of assistance in developing PSAs and news releases for use in your area.

B. Educational Component. If the program is to be successful, it should include a well-planned educational component. The following should be considered parts of this activity:

1. Student Education - Content should be presented at appropriate grade and developmental levels through health education and physical education classes. Related content can be presented through elementary classroom health curricula. Content should include: what scoliosis is, how it is detected, why it is important to screen, what the screening procedure will be, what will be done for those with positive findings, and why it is important to act on those findings.

2. Parent Education - In addition to using the media and public awareness activities to present scoliosis information a planned educational program for parents should be offered. This may be done through Parent-Teacher Association activities, or adult education programs in the district or regionally through a BOCES. Content should include the same subject areas as the student curriculum. In addition, parents should be made aware of the need for early diagnosis and treatment, if such is indicated; treatment modalities which are currently available; sources for diagnosis and treatment and, most importantly, that scoliosis does not result from bad posture or anything a parent or child did or did not do.
3. Staff Education - Inservice programs should be made available to all school staff to make them aware of these facts and possible adaptations of the instructional program which may be required for children being treated for one of these spinal deviations.
4. Screeners Education - This should include selection of the staff who will conduct the screening; provision of a planned inservice program to prepare the screeners; criteria for referral; referral procedures and follow-through activities. Selection and acquisition of appropriate training and resource materials for screeners is essential.

Screeners Training should include not only a presentation of theory and a demonstration of the screening method but also "hands-on" practice of the screening method under supervision. Programs currently offered vary in length and may not always include supervised practice sessions. It is recommended that: the training program be at least 3 hours in length to provide time for such practice. This will help to assure that all who screen use the same method and standards. For possible sources of training in screening techniques, contact the Bureau of School Health Education and Services (518) 474-1491.

III. Scoliosis Screening Program

A. Objectives:

- .To identify all pupils with common spinal deviations by annual screening and improving the technique being used.
- .To improve inschool management of children with spinal deviations by improving school health services collaboration with health care providers (public and private), the child, the family and members of the school staff relative to:
 - delivery of the prescribed treatment regimen
 - adaptation of the school program, if necessary
 - monitoring of the child's health status
- .To improve individual and/or group health counseling relative to scoliosis for pupils and families.
- .To increase school nurse-teacher contributions to health education through increased collaboration with health educators relative to the development of health education curriculum for pupils, inservice education programs for staff members and education programs for parents related to scoliosis and other common spinal deformities.

B. Selection of Screeners. The following school staff may be selected to serve as screeners and should complete appropriate training:

- | | |
|------------------------------|-------------------------------|
| 1. School physician | 5. Physical therapist |
| 2. School nurse-teacher | 6. Physical education teacher |
| 3. School nurse practitioner | |
| 4. School nurse | |

The number of staff selected for training as screeners should be sufficient to provide: 1) initial screening of all pupils participating in the program and 2) rescreening of all pupils with positive findings on initial screening.

Rescreening should be done by a staff member who was *not* the original screener. If the initial screening was done by other than health services staff, the re-screening should be provided by a member of health services. If the initial screening was done by a member of the health services staff, the rescreening should be done by a *different* member of health services. Second screeners should be provided with a copy of the findings of the initial screener, *after rescreening*. All questionable findings in this second screening should be referred to the school physician for determination.

No health care provider who may benefit from the referral process should be involved in the actual screening procedure.

C. Screening Options. The following are offered as possible screening options which individual districts may use to facilitate scheduling of pupils and staff time:

1. Screen as part of physical examinations at the mandated grades.
2. Screen as part of physical examinations for interscholastic sports participation, working papers other than newspaper carrier permits, or other such activities.
3. Screen as part of a nursing assessment package, i.e. with other required screenings.
4. Screen as part of physical education program.
5. Screen as a separate activity by class or grade.
6. Other in-school options as identified by the district.

D. Site Selection and Preparation

1. The screening area should be located where the students can change clothing in privacy, yet be close to the screening station. Possible sites are: gymnasium or health office.
2. At the time screening is in process, the area selected should not be used for other than the screening activity.
3. The area selected should be warm, well-lighted and permit screening to be done individually and with privacy.
4. The screening stations should be equipped with a chair and desk or table for each screener. Information must be recorded as the screening progresses.
5. Place a tape on the floor of each station to indicate where the student should stand during screening.

E. Preparation of students

1. Boys and girls should be screened separately.
2. All students should be seen and screened individually.
3. Boys should strip to the waist and wear briefs or gym shorts.
4. Girls should be requested to wear shorts and a halter or a bra and blouse which buttons down the back. Leotards or one-piece bathing suits tend to camouflage the lower spine area, but are also acceptable.
5. All students should remove shoes or sneakers before screening.
6. All students should have their height measured (without shoes).

F. Screening Procedure. Every child should be screened in each of the following positions:

1. First Screening Position. (The screener should be seated 5-8 feet from the tape mark on the floor.) The student should stand erect with back to the screener, toes placed on the tape, feet together, knees straight and weight evenly distributed on both feet. Arms should be at the sides and relaxed. Students should be encouraged to avoid slouching or standing "at attention". The screener should check for the following:
 - a. Unequal shoulder levels, i.e. one shoulder higher than the other.
 - b. Uneven shoulder blades, i.e. one protrudes more or is higher than the other.
 - c. Deviation in alignment of spinous processes.
 - d. Uneven hip levels or waist crease, i.e. one hip higher than the other or waist crease deeper on one side than the other.
 - e. Unequal distance between arms and body.
 - f. Apparent unequal length of arms as they hang down relaxed, or with arms bent at the elbows.
 - g. Have the student flex laterally, first to the right side, then to the left side and observe for any distortion of the normal "C" curve of the spine.
2. Second Screening Position. (The screener remains seated.) The student continues to stand erect, but is directed to stand first with his/her right side toward the screener. In this position the screener should check for the following:
 - a. Accentuated roundback, i.e. the shoulders hunch forward and cannot be retracted to normal position.
 - b. Accentuated prominence of the dorsal spine.
 - c. Grossly accentuated swayback, i.e. the angle between the lumbar spine and the sacrum is increased.
 - d. Accentuated prominence of the sacrum and buttocks.

When this has been done, have the student turn and stand with his/her left side toward the screener and repeat as in a-d above.

3. Third Screening Position. (The screener remains seated.) The student continues to stand erect but faces the screener with heels on the tape. Posture should be the same as in the first position. The screener should check items a,d, and e, as in position 1.
4. Fourth Screening Position. The student should bend forward at the waist 90°. Feet 4 inches apart, knees straight and toes even. Palms of the hands are held together or facing each other, arms hang down and relaxed. The head is down. The screener should examine students in this position from the front view, back view and both sides. The screener should check for the following:

- a. Asymmetry (uneven contours) of the rib cage or upper back, i.e. one side higher than the other.
- b. Rib hump present in upper or lower back.
- c. Curve in the alignment of the spinous processes.
- d. If an accentuated swayback was observed in the second position, ask the student to touch his or her ankles. Note whether the student can or cannot touch them.

Notes: *Kyphosis of rounding seen with "poor posture" evens out in the forward bend position. If it is of significance it will still be present in the forward position. Similarly, Lordosis or swayback should flatten out in the forward bend position. If it is of significance it will not flatten out and the child will not be able to touch his/her ankles.*

5. Recording. The date and results of the screening should be recorded on the student's Cumulative Health Record (CHR) under School Nurse Teacher's Notes.
 6. Rescreening. In order to avoid the possibility of unnecessary referral all students with positive findings in any part of the screening should be rescreened at a separate session by someone other than the original screener. (See Section III. B., paragraph 3.)
- G. Referral. After the rescreening, any child with an identified spinal deviation should be referred for further evaluation. All pupils should be informed of the results of the screening. Students with positive findings and their parents should be personally contacted for immediate counseling. It should be clearly stated that a positive screening result does not constitute a diagnosis of scoliosis, but does indicate the need for further evaluation and even those with normal results will have an annual screening checkup.

During this initial session, the school nurse-teacher should:

1. Explain the results of the screening and their significance.
2. Answer all questions. (Provide an opportunity for them to ventilate their concerns, anxieties and other problems.)
3. Offer assistance in obtaining followup if such assistance is needed or desired. Initial referral should be to the family's private health care provider. In the event that they do not have one, the family should be provided with an alphabetical listing of area health care providers and clinics from whom they may select.
4. Provide them with a written referral form and review it with them to be certain that they understand both the information being given to and the information being sought from the evaluator.
5. Request that the evaluator return the completed referral form to the school nurse-teacher regardless of the findings.
6. Arrange with the family, the child, and the private health care provider how monitoring of the condition and exchange of information will be handled during the followup period.
7. Arrange with the parents for screening the siblings of children with positive findings, particularly if they are 8 years of age or older, since scoliosis tends to run in families.

- H. Followthrough. Students with questionable findings who are not referred to private health care providers, should be rescreened in 4-6 months. Therefore it is important to keep a list of these students to facilitate scheduling this followup session. Both parents and students should be kept fully informed.

Students referred for evaluation and their parents will need support during this period, both to allay their fears and to reinforce the need for completing the evaluation process. After the evaluation has been completed, these students will be followed as directed by their private health care provider. In addition, the school nurse-teacher should:

1. Provide in-school support services for those students with diagnosed problems, being sure that *no school services are offered which cannot be delivered.* These might include:
 - .adaptation of the physical education program
 - .supervision of a prescribed exercise regimen
 - .brace or cast care
 - .counseling for students or parents related to the prescribed regimen, adaptation of the school program, weight control, and/or diet.
2. Include all pertinent information relative to scoliosis screening, evaluation results, treatment regimen, status and monitoring process on the CHR under School Nurse-Teacher Notes.
3. When a pupil leaves the district prior to graduation, advise both the parent and the child to have the new school send for this health information. It is advisable to have the parents sign a release-of-information form before leaving the district.

REQUEST FOR WAIVER OF REQUIREMENT FOR SCOLIOSIS SCREENING

The Regulations of the Commissioner of Education, Section 136.3 (b) provide that school districts may apply for a waiver of these requirements if they lack the capability to comply and if such compliance would place a financial cost upon the school district. If a district wishes to seek such a waiver, the following is the required procedure which the board of education must follow:

1. Identify the specific reasons for the lack of capability to comply.
2. Identify the specific nature of the financial burden which would be imposed by compliance.
3. Prepare a formal resolution of the board of education requesting waiver of the requirements for scoliosis screening.
4. Prepare a formal notice of a public hearing to be held concerning the resolution.
5. Conduct the public hearing.
6. If there is concurrence at this public hearing, file the application for waiver. Applications for waiver are obtainable through the Bureau of School Health Education and Services.

The date for filing the application is on or before October 1 of each school year, *except that for the 1978-79 school year, such application shall be filed no later than April 1, 1979.* A waiver of this requirement is valid for one school year only. *The above procedure must be repeated each time a request for waiver is requested.*

For assistance in program planning, development or evaluation or if you have questions, contact the Bureau of School Health Education and Services.

PLEASE DISTRIBUTE THIS DOCUMENT TO ALL APPROPRIATE PERSONNEL. Extra copies may be obtained from the Bureau of School Health Education and Services, 55 Elk Street, Albany, New York, 12234.

Approved by:

Leo A. Soucy, Coordinator
Office of District Organization,
Health and Pupil Services

February 1979

APPENDIX A

Scoliosis References and Resources

PAMPHLETS

"Scoliosis....What's That?"
Scoliosis Research Society
Suite 800, 430 North Michigan Ave.
Chicago, Illinois 60611

Cost: \$25 per 100 copies
Minimum order 100 copies

"Scoliosis - Ciba Clinical Symposia"
Ciba Pharmaceutical Company
Summit, New Jersey 07901

Cost: \$1.50 each

Spinal Screening Program Handbook
(Prepared by the: Scoliosis Research Society,
an affiliate of the American Academy of
Orthopaedic Surgeons)

Must be ordered by an
orthopaedic surgeon who
is a member of the American
Academy of Orthopaedic Surgeons.

"Brace Yourself-Scoliosis and the
Milwaukee Brace"
Rainbow Youth Spine Center
2065 Adelbert Road
Cleveland, Ohio 44106

Cost: \$1.50 each

"Scoliosis"
New York State Chiropractic Association
45 John Street
New York, New York 10038

Cost: \$.50 each

Outline of Screening Program for Early
Detection of Postural Defects of Scoliosis
and Other Related Spinal Problems.
(Prepared by: The Scoliosis Association, Inc.
One Penn Plaza, New York, New York 10001)

Cost: Unknown

BOOK (Paperback)

"Deenie" by Judy Blume, Dell Publishing Co.

Cost: \$1.25

FILMS AND FILMSTRIPS

Scoliosis Screening for Early Detection in a School Program

16 mm color, sound, 14 minutes

Cost: \$250.00

Available from: Multi-Video International, Inc.

7300 France Ave. South, Suite 220, Minneapolis, MN 55435

Also available in 3/4" video cassette

Cost: \$250.00

Dangerous Curve

A film on scoliosis available from:
Public Relations Department, Newington Children's
Hospital, 181 East Cedar St., Newington, Conn. 86111
Has been cleared for television.

Cost: Unknown

Scoliosis School Screening for Early Detection and Effective Treatment

20 minute sound-slide programs

Available from: Scoliosis Foundation of
Fountain Valley
11100 Warner Avenue, Suite 114
Fountain Valley, CA 92708

Cost: \$79.95+6%
California sales
tax. (must be prepaid)

APPENDIX B

SAMPLE PRE-SCREENING LETTER TO PARENTS

(School District Name and Address)

Dear Parent:

Effective February 1, 1979, New York State Education Law requires that all children between 11 and 16 years of age receive a school screening examination to find children with possible curvature of the spine (scoliosis).

The procedure for screening is simple. Screeners* who have been specially trained will look at your child's back standing and bent forward. For this examination, boys and girls will be seen separately. Boys will wear gym shorts and remove their shirts. Girls will wear shorts and are requested to wear a halter, bra or bathing suit top under a blouse which opens down the back.

The chances of your child having scoliosis are very small, but we have a responsibility to find those few cases very early. If your child has a possible problem, you will be contacted promptly, otherwise you will not hear from us.

If you have any questions, please contact your school nurse-teacher or school nurse immediately.

Sincerely

Superintendent of Schools

School Physician

*The district should insert the titles of such trained screeners in parentheses at this point, e.g., (school physician, school nurse-teacher, physical therapist)

APPENDIX C

SAMPLE REFERRAL LETTER TO PARENTS

(School District Name and Address)

Dear Parent:

During the recently conducted school spinal screening program, a trained screener inspected your child's spine and has recommended that _____ have further evaluation by your family

(name of child)
health care provider.

We would like to emphasize that a complete examination and an x-ray of the spine is suggested to correctly determine whether a problem exists. If so, you may be advised to refer your child to a specialist for treatment.

If you do not have a health care provider, we request that you call the school nurse-teacher or school nurse at your child's school to obtain an alphabetical listing of available health care providers and clinics in our area from whom you may request care.

The enclosed letter should be presented to your health care provider at the time of the child's examination with the request that (s)he complete the form and return it to us as soon as possible.

Proper followup for this matter is important and cannot be over-emphasized. Your cooperation is essential.

Sincerely,

School Physician or School Nurse-Teacher
or School Nurse

APPENDIX D

SAMPLE REFERRAL LETTER TO PRIVATE HEALTH CARE PROVIDER

(School District Name and Address)

Effective February 1, 1979, New York State Education Law requires that all children between 11 and 16 years of age receive a yearly school screening examination for the detection of postural deformity such as scoliosis.

In other states where these programs have been conducted, about 14% of the children screened have been found to have a spinal variation. The purpose of the school screening program is to recognize the deformity at its earliest stages so that progression can be prevented. Failure to understand the progressive nature of these curves has been a major factor contributing to late referral for treatment and therefore poor long-term results.

Your patient _____ was screened on _____
(name of child) (date)
and found to have physical findings consistent with a postural deformity of the spine: scoliosis, kyphosis, lordosis. Please review the school screener's
(circle those appropriate)
findings. If your examination is positive, an appropriate x-ray of the spine should be obtained to establish the diagnosis.

In order for the school to fully evaluate this screening program and serve the individual child's needs, it is necessary that we receive followup information from you. We request that you complete the following information and return this form to the school.

Sincerely,

(School Physician)

Name of Child: _____

Date Seen: _____

This X-Ray Shows: _____

Disposition:

Signature: _____

Printed Name: _____
(Health Care Provider)

Address: _____

Date _____

Please Return to: _____

(School Nurse-Teacher or School Nurse)

(School)

(Address)